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THE IMPACT OF ELECTRONIC ACCOUNTING ON THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES (SMES) IN IRAQ

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Abstract:

Electronic accounting has emerged as a critical success factor influencing the growth and sustainability of small and medium enterprises (SMEs). It plays a central role in daily operations and managerial activities, surpassing many other information systems in its ability to support planning, organizing, controlling, and decision-making processes. By enabling the effective utilization of available resources, electronic accounting provides essential financial and managerial information that helps decision-makers assess past performance and design future strategies.

Although prior studies have investigated the relationship between electronic accounting and internal control systems, limited attention has been given to examining how specific features of electronic accounting—such as information quality, cost efficiency, rapid decision-making, and ease of use—affect both internal control mechanisms and operational performance. Furthermore, there is a need for deeper exploration of how organizational structures shape these relationships.

This study addresses these gaps by analyzing the connection between electronic accounting functions, internal control systems, and organizational efficiency. Using a sample of 345 accountants employed in Iraqi SMEs, the research model was tested through Smart PLS analysis. The findings confirm that electronic accounting significantly enhances both the effectiveness of internal control systems and overall business performance. These results provide valuable theoretical insights and practical implications, offering a clearer understanding of how SMEs can leverage electronic accounting to strengthen internal controls and improve operational outcomes.

Keywords — **Cost Efficiency, Smart PLS Analysis, Electronic Accounting, Operational Performance.**

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I. INTRODUCTION

In the contemporary business environment, electronic accounting has become a fundamental resource for organizations of all sizes. It refers to the use of computerized systems and software applications designed to record, track, and analyze financial transactions while providing immediate reporting and business insights. Effective electronic accounting enables firms to maintain control over their financial activities, reduce reliance on manual documentation, and streamline transaction processing. By adopting such systems, businesses can save time and costs, access high-quality

financial information, and make faster and more informed decisions.

Small and medium enterprises (SMEs) play a crucial role in demonstrating the strategic importance of accounting within the business community. Their success or failure is often linked to the availability and use of timely, accurate, and reliable accounting information. Modern accounting systems not only support financial analysis and verification but also contribute to broader organizational functions such as strategic planning, human resource management, and marketing. When properly implemented, electronic accounting systems enhance the efficiency of financial data management and allow organizations to generate instant reports that support decision-making and operational control.

Technology has become indispensable for ensuring accurate information and effective business management. The integration of information technology solutions into accounting practices has significantly influenced productivity and performance across both service and manufacturing sectors. Electronic accounting, in particular, has transformed traditional practices by eliminating guesswork, reducing documentation burdens, and improving consistency in financial reporting. Research has consistently shown that the adoption of electronic accounting enhances organizational performance, strengthens internal control mechanisms, and facilitates smoother business transactions.

Accounting systems are essential for recording, monitoring, and evaluating a company's financial position. They provide insights into stability, profitability, and long-term viability through indicators such as return on investment (ROI), return on equity (ROE), and return on assets (ROA). Automated systems further reduce accounting costs by ensuring timely and accurate reporting, which supports financial decision-making. While large corporations often develop customized accounting solutions, SMEs can benefit from standardized accounting packages that meet their operational needs. Ultimately, the reliability of financial data and the effective use of electronic accounting systems are critical factors in determining the survival and success of SMEs.

II. Literature Review

This section highlights the theoretical contribution of the study and provides an overview of prior research examining the link between electronic accounting, internal control, and the performance of small and medium enterprises (SMEs). The review emphasizes how the characteristics of electronic accounting—such as accuracy, efficiency, and accessibility—have influenced organizational outcomes. Particular attention is given to the mediating role of internal control systems, which serve as a mechanism through which electronic accounting enhances operational effectiveness. (Al-Hattami et al., 2026)

Previous studies have generally confirmed that electronic accounting improves the quality of financial information, reduces costs, and supports timely decision-making. However, limited research has explored how these features interact with internal control structures to shape SME performance. By synthesizing existing findings, this review establishes the foundation for the current study, which seeks to clarify the extent to which internal control mediates the relationship between electronic accounting practices and organizational efficiency. (Dama et al., 2026)

III. The Use of TAM Theory in Understanding Technology Adoption

In recent decades, the growing importance of information technology has highlighted the need to understand why new technologies are either adopted or rejected. Since the emergence of software engineering, researchers have increasingly focused on the acceptance, adoption, and utilization of information systems as a fundamental requirement for effective service delivery and technological advancement. For small and medium enterprises (SMEs), continuous investment in information technology is essential to remain competitive and sustainable.

The Technology Acceptance Model (TAM) has become one of the most influential frameworks for explaining how individuals and organizations accept and use information systems. Rooted in the theory of rational action, TAM emphasizes that user perceptions of usefulness and ease of use are

critical determinants of technology adoption. Within the context of SMEs, the model suggests that embracing innovations such as electronic accounting systems can significantly enhance performance, strengthen internal monitoring, and improve efficiency. (Gong et al., 2026)

A key factor in the successful implementation of electronic accounting is user trust, which directly influences the willingness of employees to adopt and rely on computerized systems. When trust and confidence in technology are established, electronic accounting can effectively support internal control mechanisms, thereby improving organizational performance. Moreover, psychological perspectives highlight that personal beliefs and attitudes play a vital role in shaping technology acceptance, reinforcing the idea that both technical and behavioral dimensions must be considered to ensure successful adoption. (Nurbasari et al., 2026)

IV. Applying Contingency Theory

The second theoretical perspective adopted in this framework is contingency theory, which emphasizes that organizational practices and outcomes are valid only under specific circumstances or conditions. The theory highlights that the effect of one variable often depends on the presence or influence of another, making organizational effectiveness contingent upon situational factors. (Santos et al., 2025)

Originally proposed in the mid-twentieth century, contingency theory is considered a behavioral approach that explains how organizational structures and control mechanisms must adapt to the environment in which they operate. Its effectiveness lies in aligning decision-making processes and control systems with contextual variables such as organizational size, structure, strategy, and external uncertainty.

Within the context of SMEs, contingency theory suggests that the success of internal control systems and risk management practices is not universal but depends on how well these systems are tailored to the specific conditions faced by the enterprise. By recognizing the role of environmental uncertainty, organizational design, and strategic orientation, contingency theory provides a valuable lens for understanding how electronic accounting and internal control interact to influence overall performance. (Jappar & Abuzabiba, 2025).

V. Applying Stewardship Theory

The final theoretical perspective integrated into this framework is stewardship theory, which emphasizes the role of managers as responsible custodians of organizational resources. Unlike perspectives that assume managerial behavior is primarily self-serving, stewardship theory suggests that when managers are granted autonomy, they tend to act in the best interest of the organization, aligning their goals with those of the stakeholders. (Gu & Lukin, 2025)

This theory is particularly relevant in explaining the effectiveness of internal control systems. It highlights situations where trust and accountability mechanisms encourage managers to safeguard assets, ensure transparency, and enhance organizational performance. By positioning managers as stewards rather than agents, the theory underscores the importance of integrity and responsibility in decision-making processes.

Within the context of SMEs, stewardship theory provides a valuable lens for understanding how management practices can strengthen internal monitoring and reporting. It suggests that when managers embrace accountability and prioritize organizational interests, internal control systems become more effective, ultimately contributing to improved performance and long-term sustainability. (Sukriyah et al., 2026).

VI. The Concept of Electronic Accounting

The management of financial data within organizations can be significantly enhanced through the use of electronic accounting systems. This concept refers to computerized accounting applications that rely on modern technology to process, record, and analyze financial transactions. In today's business environment, electronic accounting has become an indispensable resource, offering immediate reporting and analytical capabilities that support managerial decision-making.

When integrated into organizational operations, electronic accounting systems enable firms to

manage financial information more efficiently, reduce reliance on manual documentation, and deliver timely results. These systems allow businesses to evaluate past performance, design future strategies, and meet both economic and managerial needs. The benefits are evident in multiple areas: financial data becomes easier to interpret, operational processes are simplified, and overall organizational structures are strengthened. (Arsyad, 2026)

Electronic accounting positively influences several aspects of business performance, including revenue growth, profitability, customer satisfaction, and cost reduction in training, production, and maintenance. Beyond financial outcomes, it also shapes organizational behavior by promoting efficiency, transparency, and accountability.

Moreover, expertise in electronic accounting has become a critical skill for accountants, particularly within small and medium enterprises (SMEs). Proficiency in these systems not only enhances career success but also ensures that accountants can effectively support their organizations in achieving operational efficiency. Within this research framework, electronic accounting is examined in terms of its core characteristics—such as information quality, cost savings, decision-making support, and ease of use—highlighting its role as a transformative tool for SMEs. (Taneni et al., 2026).

VII. Information Accuracy and Reliability

The concept of information quality is closely tied to the distinction between the information required to achieve organizational objectives and the information actually collected. In essence, information quality refers to the ability of data to meet the needs of its users, both stated and potential. Within enterprises, the importance of high-quality information has long been recognized, as it enables managers and employees to understand organizational data and maintain effective control over operations.

In recent years, the demand for reliable information has grown significantly. Employees increasingly expect accurate and timely data to complete their tasks efficiently, while organizations seek mechanisms to integrate information across diverse and globally distributed operations. At the same time, stricter standards have been introduced to ensure data accuracy and prevent manipulation, making information quality a critical factor in the success of electronic accounting systems. (Nguyen et al., 2025)

For small and medium enterprises (SMEs), effective information management is essential. Quality information must be reliable, complete, consistent, and delivered in a timely manner. These attributes allow electronic accounting systems to provide trustworthy insights that support decision-making, budgeting, and organizational control. Reliability, in particular, is a cornerstone of information quality, as managers must be confident that the data they use reflects the true financial position of the business.

Ultimately, the effectiveness of electronic accounting depends on the quality of the information it generates. When data is accurate, dependable, and aligned with organizational needs, it strengthens internal control systems, enhances decision-making processes, and contributes to overall business performance. (Abuzabiba et al., 2024).

VIII. The Role of Cost Reduction in E-Accounting

Cost reduction refers to deliberate and structured approaches aimed at improving efficiency while maintaining the quality and effectiveness of services. In today's highly competitive business environment, small and medium enterprises (SMEs) face constant pressure to minimize expenses and eliminate non-value-adding activities. A thorough examination of all aspects of the cost structure is essential to preserve competitiveness and achieve sustainable profitability.

Maximizing profit remains a key indicator of business success, and this requires balancing sales growth with effective cost management. In competitive markets where the price of goods and services strongly influences demand, controlling expenses becomes critical. By reducing unnecessary expenditures and optimizing resource utilization, businesses can strengthen their financial position and ensure long-term viability. (Wang & Zhang, 2025)

Technological advancements have provided new opportunities for cost reduction. The adoption of electronic accounting systems allows organizations to record, transfer, and store financial data electronically, reducing reliance on manual documentation. This transition not only lowers administrative costs but also enhances regulatory compliance and operational efficiency. By automating accounting processes, businesses save time, reduce labor requirements, and improve accuracy in financial reporting.

Overall, cost reduction through electronic accounting enables SMEs to streamline operations, improve decision-making, and maintain competitiveness in dynamic markets. It serves as a strategic tool for achieving efficiency without compromising service quality, ultimately contributing to organizational growth and sustainability. (Al-Jubouri et al., n.d.,2025).

IX. Rapid Decision-Making

Decision-making is a fundamental process aimed at achieving desired outcomes by selecting the most suitable option from several alternatives. For small and medium enterprises (SMEs), the ability to make timely and high-quality decisions is critical to their success and sustainability. Internal decision-making structures play an important role, as they define the allocation of decision rights and responsibilities within the organization. (Alfan et al., 2026)

Globalization and increasing competition have introduced greater uncertainty, making effective decision-making even more essential for SMEs. Modern technologies, particularly electronic accounting systems, provide valuable support by enabling real-time reporting and integration across key business functions such as procurement, production, planning, and monitoring. Immediate recording and reporting of transactions ensure accuracy and reduce the risks associated with delays, thereby strengthening organizational control.

Electronic accounting enhances decision-making by offering accessible options, improving efficiency, and reducing operational costs. By delivering accurate and timely information, these systems empower managers to act with confidence, streamline processes, and respond quickly to market changes. Ultimately, the integration of electronic accounting into decision-making frameworks allows SMEs to improve performance, maintain competitiveness, and achieve greater organizational effectiveness. (Purwantini et al., 2025).

X. Ease of Use as a Dimension of E-Accounting

For any accounting system to be effective, its interface must be user-friendly and capable of guiding individuals through tasks at different stages. A well-designed system reduces the gap between users and technology, allowing them to focus more on completing their work rather than struggling with the software itself. User-friendly interfaces typically request necessary details from users, confirm actions before execution, and minimize the risk of errors that could negatively affect operations. (Kampoowale et al., 2026)

In the era of rapid technological advancement, organizations must adapt by creating technology-based work environments. This shift also requires attention to accounting education, where learners and professionals are expected to develop skills in evaluating, interpreting, and applying information. The integration of e-learning platforms has made accounting knowledge more accessible, enabling learners to interact with digital systems without boundaries. As information and communication technologies continue to evolve, accounting education has increasingly emphasized the importance of electronic accounting as a core competency.

The widespread use of computers in enterprises has made electronic processing and storage of financial data indispensable. For accounting professionals, computer literacy has become essential, and students must be trained to use accounting software effectively. Instructors play a key role in equipping learners with practical skills that align with technological developments, ensuring that future accountants can adapt to modern business requirements.

However, long-term exposure to technology does not necessarily guarantee efficient use. The success of electronic accounting systems depends largely on their ease of use and clarity. When software is intuitive and accessible, it enhances productivity, improves the quality of financial outputs, and contributes to organizational success. Benefits

include increased sales and revenues, higher customer satisfaction, and reduced costs related to training, support, and system maintenance. Ultimately, user-friendly accounting software strengthens both individual performance and overall business efficiency. (Zotorvie et al., 2025).

A. Understanding Internal Control Systems

Internal control systems consist of the policies and procedures established by management to ensure that organizational objectives are achieved in an orderly and efficient manner. These systems are designed to safeguard assets, prevent and detect fraud, minimize errors, and guarantee the accuracy and consistency of accounting records. By doing so, they provide reasonable assurance regarding the effectiveness of operations, the reliability of financial reporting, and compliance with applicable laws and regulations. (Kamarudin & Murad, 2026)

An effective internal control system requires managers to emphasize adherence to internal policies, protection of resources, and timely preparation of complete and accurate financial information. The objectives of internal control include securing assets, preventing unauthorized transactions, and maintaining detailed records that reflect the company's financial position. Transparent reporting, often guided by established accounting principles, enhances efficiency in managing revenues and expenditures while supporting sound governance practices. (Husna et al., 2026)

Electronic accounting plays a vital role in strengthening internal control systems. By integrating monitoring functions into digital platforms, organizations can obtain reliable and timely accounting information that supports oversight and compliance. Without such integration, the risk of dishonest activities and reporting errors increases. Electronic accounting helps address shortcomings in financial reporting by automating processes, reducing human error, and providing comparative, up-to-date data for managerial decision-making.

Ultimately, the quality of financial reports is closely linked to the effectiveness of both internal control and electronic accounting. Together, they ensure that organizations produce standardized, reliable information that serves as a foundation for strategic decisions and regulatory compliance. (Ochieng et al., 2025)

B. Measuring Performance

The performance of small and medium enterprises (SMEs) can be understood as the extent to which organizational actions achieve intended objectives. Success is often determined by how effectively a company meets the needs of its stakeholders compared to its competitors. Performance may be assessed through both quantitative measures, such as financial indicators, and qualitative measures, such as customer satisfaction and organizational efficiency.

Organizational efficiency can be evaluated using economic and non-economic variables, reflecting both tangible outcomes and intangible contributions. Within this context, electronic accounting has emerged as a key tool for enhancing SME performance. By providing reliable and relevant information to decision-makers, reducing costs, and offering user-friendly solutions, electronic accounting strengthens internal control systems and supports effective financial management. (Zhang et al., 2026)

Electronic accounting systems combine systematic controls with accounting techniques to record transactions, generate internal and external performance reports, and improve the overall quality of financial reporting. This integration enables organizations to monitor their financial position more accurately and respond to changes in both internal and external environments.

Moreover, electronic accounting contributes to the execution of business strategies by improving efficiency and adaptability. In times of environmental uncertainty, managers can reassess objectives and strategies using insights derived from accounting systems. This allows SMEs to identify problems, adjust operations, and maintain competitiveness. (Belhaj et al., 2026)

Different forms of electronic accounting systems, ranging from simple applications to more advanced solutions, provide flexibility in meeting organizational needs. Even basic accounting software can enhance performance by simplifying processes and delivering timely information. Over the past decades, electronic accounting has grown

significantly, and its role in shaping business processes and outcomes has been widely recognized. It continues to serve as a critical factor in improving SME performance, ensuring sustainability, and supporting long-term growth. (Kinyua & Mungai, 2026)

C. Hypotheses development

The proposed framework of this study illustrates the relationships among electronic accounting characteristics, internal control systems, and the performance of SMEs. Based on the theoretical foundations and literature review, the following hypotheses are developed:

H1: Information quality in electronic accounting has a positive impact on the effectiveness of internal control systems.

H2: Cost reduction achieved through electronic accounting positively influences SME performance.

H3: Fast decision-making facilitated by electronic accounting enhances the efficiency of internal control systems.

H5: Ease of use of electronic accounting systems positively affects SME performance.

H6: Internal control systems mediate the relationship between information quality and SME performance.

H7: Internal control systems mediate the relationship between cost reduction and SME performance.

H8: Internal control systems mediate the relationship between fast decision-making and SME performance.

H9: Internal control systems mediate the relationship between ease of use of electronic accounting and SME performance.

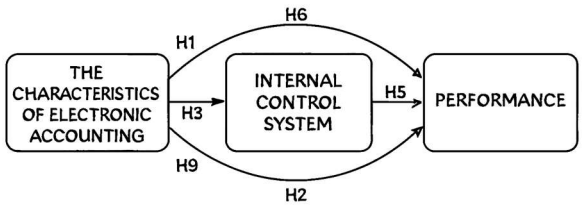

Fig. 1 The research framework

The proposed model suggests that the internal control system functions as a mediating variable in the relationship between electronic accounting and organizational performance. Specifically, the framework assumes that the key characteristics of electronic accounting—namely information quality, cost reduction, fast decision-making, and ease of use—directly influence both internal control mechanisms and overall performance outcomes.

The conceptual model further acknowledges that these electronic accounting functions are closely linked to the implementation of enterprise management systems (EMS) and the effectiveness of control structures. By integrating these elements, the model provides a comprehensive view of how electronic accounting contributes to organizational efficiency and sustainability.

Based on this framework, the study develops a set of hypotheses to examine the relationships among the variables. These hypotheses will be presented and explained in detail in the following sections, highlighting the direct and indirect effects of electronic accounting characteristics on SME performance through the mediating role of internal control systems.

D. Linking Information Quality, Cost Efficiency, Decision-Making Speed, and Ease of Use to Internal Control

The foundation of the current study rests on examining the relationship between the characteristics of electronic accounting and the internal control system within SMEs. The first hypothesis (H1) specifically investigates whether information quality significantly influences the effectiveness of internal control mechanisms. In today's data-driven environment, organizations must ensure that both internal and external stakeholders have access to accurate, timely, and relevant information to support informed decision-making.

Electronic accounting plays a pivotal role in transforming raw economic data into structured financial information. This transformation enhances decision-making capabilities and contributes to improved organizational performance. As SMEs operate in increasingly competitive and

information-intensive environments, the ability to manage and interpret financial data becomes essential. (Wicaksono & Soraya, 2026)

Electronic accounting systems serve as administrative tools that facilitate the collection, classification, validation, and dissemination of financial information. Their effectiveness depends on several factors, including employee competence, organizational structure, managerial support, and the quality of information produced. These elements collectively influence the strength and reliability of internal control systems.

The integration of electronic accounting with internal control frameworks allows SMEs to manage operations more efficiently, reduce errors, and ensure compliance with regulatory standards. High-quality information enhances the precision and practicality of internal controls, enabling organizations to safeguard assets, prevent fraud, and maintain financial integrity.

Therefore, it is anticipated that the adoption of electronic accounting—particularly its ability to deliver high-quality information—will have a significant and positive impact on the internal control systems of SMEs. This relationship forms a critical component of the conceptual model and supports the development of subsequent hypotheses. (Quarshie et al., 2026)

H1. Information quality improves the internal control system

High-quality information is essential for SMEs to maintain effective internal control. Accurate and timely data reduces errors, supports decision-making, and strengthens the relationship between accountants and control units. Electronic accounting ensures that information is reliable, thereby enhancing the efficiency of internal control systems.

H2. Cost reduction improves the internal control system

Electronic accounting contributes to minimizing unnecessary expenses by automating processes such as invoicing, auditing, and transaction recording. Cost savings achieved through technology directly support the effectiveness of internal control systems, allowing SMEs to allocate resources more efficiently.

H3. Fast decision-making improves the internal control system

Electronic accounting provides managers with real-time financial information, enabling quicker and more informed decisions. By integrating financial and non-financial data into internal control frameworks, SMEs can respond rapidly to environmental changes and improve organizational oversight.

H4. Ease of use improves the internal control system

User-friendly electronic accounting systems simplify financial reporting and record-keeping, making internal control tasks more efficient and accessible. Features such as templates, automated transaction recording, and easy database access reduce complexity, enhance reliability, and strengthen the internal control process.H4. Easy to Use improves the internal control system

E. Internal Control and Its Impact on Organizational Performance

H5. Internal Control System improves performance.

Hypothesis 5 of the current study examines the connection between the internal control system and SME performance. The hypothesis predicts that a strong and effective internal control system significantly contributes to organizational efficiency and overall success.

Internal control systems are designed to ensure that policies and procedures are implemented effectively, safeguarding assets, preventing fraud, detecting errors, and maintaining compliance with regulations. These systems encompass various functional areas, including accounting, financial oversight, management controls, and internal audits. Collectively, they provide the foundation for directing organizational actions toward achieving strategic objectives.

Effective internal controls not only protect financial statements but also enhance organizational credibility, enabling SMEs to comply with legislation and secure external funding. Investors and stakeholders often rely on the presence of robust control mechanisms as a measure of trust

and accountability. By eliminating fraud, ensuring operational effectiveness, and securing resources, SMEs strengthen their competitive position and improve performance outcomes.

Although weaknesses in internal control can lead to inaccurate financial reporting and organizational inefficiencies, the implementation of sound and comprehensive control systems mitigates these risks. When properly enforced, internal controls safeguard assets, ensure transparency, and contribute directly to improved performance.

F. The Impact of E-Accounting Dimensions on Organizational Performance

H6. Information Quality improves performance

High-quality information generated by electronic accounting systems provides managers with reliable, timely, and comprehensible data. This strengthens decision-making, enhances efficiency, and supports both operational and strategic objectives. Therefore, information quality is expected to have a significant positive impact on SME performance.

H7. Cost Reduction has no significant effect on performance

Although electronic accounting can reduce costs by automating processes and minimizing resource use, evidence suggests that cost reduction alone may not significantly influence SME performance. In some contexts, savings achieved through e-accounting are insufficient to drive measurable improvements in efficiency or competitiveness. Thus, cost reduction is not expected to have a direct effect on performance.

H8. Fast Decision-Making improves performance

Electronic accounting facilitates rapid access to financial and operational data, enabling managers to make timely and well-informed decisions. Quick decision-making enhances organizational responsiveness, reduces risks, and supports overall efficiency. Therefore, fast decision-making is anticipated to positively affect SME performance.

H9. Ease of Use improves performance

User-friendly electronic accounting systems reduce training requirements, simplify tasks, and increase employee productivity. By offering accessible interfaces and reliable outputs, ease of use contributes to improved organizational performance, customer satisfaction, and cost efficiency.

G. Research Method

his study adopts a positivist paradigm supported by a quantitative research strategy. The positivist approach emphasizes objectivity and relies on observable and measurable evidence to explain relationships among variables. In line with this paradigm, the research employs a self-administered survey as the primary tool for data collection, enabling the gathering of first-hand information directly from respondents.

The quantitative strategy allows for the systematic measurement of variables and the statistical testing of hypotheses. By applying this approach, the study seeks to provide empirical evidence regarding the relationships between electronic accounting characteristics, internal control systems, and SME performance. The use of structured questionnaires ensures consistency in responses, while statistical analysis facilitates hypothesis testing and the validation of the conceptual model.

Thus, the research method integrates empirical analysis with hypothesis-driven investigation, ensuring that the findings are both reliable and generalizable within the context of SMEs. (Chuyko, 2026)

H. Development of the Survey Instrument

To measure the variables included in the research model, a structured survey instrument was developed in accordance with established methodological guidelines. The initial section of the questionnaire was designed to collect demographic information about the respondents, ensuring that background characteristics could be considered in the analysis. The subsequent sections comprised items specifically tailored to capture data related to each construct in the conceptual framework.

All constructs were measured using Likert-type scales, which allow respondents to indicate the degree of agreement or disagreement with each statement. This approach provides a standardized method for quantifying perceptions and attitudes. The reliability of the scales was assessed using Cronbach's Alpha, confirming satisfactory levels of

internal consistency across the items. (Cao & Hamzah, 2026)

The survey items were adapted from prior studies published in reputable academic journals to ensure both validity and relevance. This adaptation process guaranteed that the measures were aligned with established research practices while remaining suitable for the current study context. Prior to distribution, respondents were informed about the purpose of the survey and consented to participate. The study achieved a 100% response rate, reflecting the willingness of participants to contribute and ensuring the completeness of the dataset for subsequent analysis. (Ramirez et al., 2026)

I. Data analysis

The data analysis in this study was conducted in two stages. In the first stage, a preliminary analysis was performed using SPSS version 23. This step focused on extracting demographic information from respondents and generating descriptive statistics to provide an overview of the sample characteristics. Additionally, tests for normality and detection of outliers were carried out to ensure the suitability of the dataset for further statistical procedures.

In the second stage, the study employed Smart-PLS version 3.9 to conduct Partial Least Squares Structural Equation Modeling (PLS-SEM). This advanced technique was used to evaluate the measurement model and to test the proposed hypotheses. PLS-SEM is particularly suitable for studies involving complex models and latent constructs, as it allows for simultaneous assessment of both measurement reliability and structural relationships. Through this approach, the study was able to validate the conceptual framework and provide empirical evidence for the hypothesized relationships among electronic accounting characteristics, internal control systems, and SME performance. (Okemba, 2026)

Respondents' Features and Demographic Profiles

Table 1 presents the demographic characteristics of the respondents. The findings indicate that the majority of participants were male (62.3%), while female respondents accounted for 37.7%.

In terms of age distribution, the largest proportion of respondents (51.9%) were between 30 and 40 years old, followed by 27.5% in the 40–50 age category. Younger respondents aged 20–30 represented 11.3%, while those aged 50–60 accounted for 5.8%. The smallest proportion (1.7%) was respondents above 60 years old.

Regarding educational attainment, 34.2% of respondents held a master's degree, 31.9% a bachelor's degree, and 15.1% a diploma. A smaller percentage had secondary education (7.2%), primary education (1.7%), or doctoral qualifications (7.5%).

Income distribution shows that the largest proportion of respondents (40.6%) earned between USD 1,000 and 1,500. Additionally, 20.3% earned between USD 1,500 and 2,000, 20.6% earned between USD 500 and 1,000, while only 9% reported earning above USD 2,000.

Satisfaction with electronic accounting was generally high. About 62% of respondents reported being satisfied, while 15.9% indicated very high satisfaction. Only 1.4% expressed dissatisfaction, and 10.7% considered e-accounting routine.

When asked about the most valued features of e-accounting, 19.4% highlighted information quality, 18.6% emphasized fast decision-making, 10.1% preferred ease of use, and 6.4% valued cost reduction. Notably, 44.1% agreed that all aspects of e-accounting are beneficial and appropriate in the workplace.

TABLE I
DEMOGRAPHIC CHARACTERISTICS

Percentage (%)	Frequency	Level	Variable
62.3	215	Male	Gender
37.7	130	Female	
11.3	39	20–30 years	Age
51.9	179	30–40 years	
27.5	95	40–50 years	
5.8	20	50–60 years	
1.7	6	Above 60 years	
1.7	6	Primary school	Education

7.2	25	Secondary school	
15.1	52	Diploma	
31.9	110	Bachelor's degree	
34.2	118	Master's degree	
7.5	26	Ph.D.	
20.6	71	USD 500–1000	Income
40.6	140	USD 1000–1500	
20.3	70	USD 1500–2000	
9	31	Above USD 2000	
1.4	5	Very dissatisfied	Satisfaction with e-accounting
1.4	5	Dissatisfied	
10.7	37	Normal	
62	214	Satisfied	
15.9	55	Very satisfied	
19.4	67	Information quality	Reason for using e-accounting
6.4	22	Cost reduction	
18.6	64	Fast decision-making	
10.1	35	Ease of use	
44.1	152	All of the above	

XI. Measurement Model: Convergent validity

The measurement model represents the relationship between latent constructs and their observed indicators. It provides the foundation for evaluating how variables are operationalized and ensures that the items used in the study accurately reflect the intended constructs. By defining the connections between questionnaire items and latent variables, the measurement model validates the reliability and consistency of the data collected.

Convergent validity refers to the extent to which indicators of a construct share a high proportion of variance. It is commonly assessed using the Average Variance Extracted (AVE), which measures the amount of variance captured by a construct relative to the variance due to measurement error. For adequate convergent validity, the AVE should exceed 0.50, while the composite reliability of the construct should be at least 0.70.

High outer loadings ($\geqslant$ 0.708) indicate that indicators are strongly associated with their respective constructs, thereby confirming reliability. Indicators with loadings below 0.40 are typically removed, while those between 0.40 and 0.70 may be considered for removal only if their exclusion improves AVE and composite reliability. This ensures that the constructs remain both valid and reliable.

Thus, the measurement model serves as a critical step in validating the observed variables, ensuring that the latent constructs are measured accurately and consistently. This process strengthens the empirical foundation of the study and supports the subsequent structural model analysis.

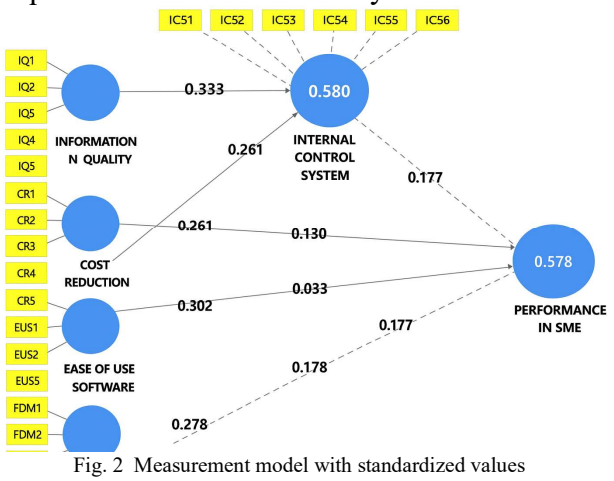

Fig. 2 Measurement model with standardized values

Discriminant validity refers to the extent to which a construct is empirically distinct from other constructs within the model. It ensures that each latent variable captures a unique aspect of the phenomenon under investigation and is not merely overlapping with other variables.

Discriminant validity can be assessed using three primary approaches:

- Fornell-Larcker Criterion
- Heterotrait-Monotrait Ratio (HTMT)
- Cross-Loading Criterion

The Fornell-Larcker Criterion compares the square root of the Average Variance Extracted (AVE) for each construct with its correlations with other constructs. Discriminant validity is established when the square root of the AVE is greater than the inter-construct correlations, indicating that the construct shares more variance with its indicators than with other constructs.

Despite some academic debate regarding the robustness of the Fornell-Larcker method, it remains widely used in structural equation modeling. An alternative and more recent method is the HTMT ratio, which evaluates discriminant validity based on the ratio of between-construct correlations. According to Henseler et al. (2015), HTMT values should be below 0.85 to 0.90 to confirm adequate discriminant validity.

In the current study, discriminant validity was assessed using the HTMT criterion, and the results are presented in Table 4.14. All HTMT values fall within the acceptable range, confirming that the constructs are empirically distinct and that the measurement model exhibits sufficient discriminant validity.

A. Assessing the structural model

Table 2 summarizes the results of the structural model assessment. The findings indicate that:

Paths to Internal Control System (Mediator): Information Quality (β = 0.333, p < 0.001), Ease of Use (β = 0.261, p < 0.001), and Fast Decision-Making (β = 0.234, p < 0.001) all show strong and significant effects, while Cost Reduction (β = 0.111, p = 0.031) has a weaker but significant impact.

Mediator to Performance: Internal Control System significantly influences SME performance (β = 0.177, p = 0.004).

Direct Effects on Performance: Ease of Use (β = 0.302, p < 0.001), Fast Decision-Making (β = 0.278, p < 0.001), and Information Quality (β = 0.130, p = 0.029) are significant predictors of performance. Cost Reduction (β = 0.033, p = 0.536), however, is not statistically significant.

TABLE III
LIST OF HYPOTHESES AND RELATIVE PATHS FOR THE FIRST MODEL

p-Value	t-Statistic	SE	β	Path Relationship
				IV → Mediator
0.031	2.153	0.052	0.111	Cost Reduction → Internal Control System
0	5.095	0.051	0.261	Ease of Use Software → Internal Control
0	5.634	0.042	0.234	Fast Decision-Making → Internal Control
0	6.776	0.049	0.333	Information Quality → Internal Control
				Mediator → DV
0.004	2.865	0.062	0.177	Internal Control System → Performance SME
				Direct Effects (IV → DV)
0.536	0.62	0.053	0.033	Cost Reduction → Performance SME
0	4.87	0.062	0.302	Ease of Use Software → Performance SME
0	5.821	0.048	0.278	Fast Decision-Making → Performance SME
0.029	2.189	0.06	0.13	Information Quality → Performance SME

The bootstrapping results presented in Table 2 confirm the statistical significance of most hypothesized paths.

- Path a (IV → Mediator):

Information Quality (β = 0.333, p < 0.001), Ease of Use (β = 0.261, p < 0.001), and Fast Decision-Making (β = 0.234, p < 0.001) all exert strong and significant effects on the Internal Control System. Cost Reduction (β = 0.111, p = 0.031) shows a weaker but still significant impact.

- Path b (Mediator → DV):

Internal Control System significantly influences SME Performance (β = 0.177, p = 0.004), confirming its mediating role.

- Path c (Direct IV → DV):

Ease of Use (β = 0.302, p < 0.001), Fast Decision-Making (β = 0.278, p < 0.001), and Information Quality (β = 0.130, p = 0.029) directly and significantly enhance performance. Cost

Reduction (β = 0.033, p = 0.536) is not significant, indicating no direct effect on performance.

- Coefficient of Determination (R^2):

The adjusted R^2 values show that the independent variables explain 57.5% of the variance in Internal Control System and 57.2% of the variance in Performance, demonstrating strong predictive power of the structural model.

- Effect Size (f^2):

For Internal Control System: Cost Reduction (f^2 = 0.018, small), Fast Decision-Making (f^2 = 0.083, small-to-medium), Ease of Use (f^2 = 0.084, small-to-medium), and Information Quality (f^2 = 0.151, medium-to-large).

For Performance: Cost Reduction (f^2 = 0.002, negligible), Ease of Use (f^2 = 0.102, small-to-medium), Fast Decision-Making (f^2 = 0.109, small-to-medium), Information Quality (f^2 = 0.020, small), and Internal Control System (f^2 = 0.031, small).

XII. Discussion

A considerable number of empirical studies have explored the antecedents of electronic accounting across different contexts. Prior research has emphasized the critical role of internal control systems and their relationship with e-accounting features, including information quality, cost reduction, fast decision-making, and ease of use. While earlier studies examined these relationships using a limited set of indicators, the current study extends this line of inquiry by employing a broader range of measurement items to capture the complexity of these constructs more comprehensively.

The findings of this investigation address the limitations of previous research by analyzing twenty-two elements that represent the four performance-related dimensions of the internal control system. The statistical results demonstrate that information quality, fast decision-making, and ease of use exert significant positive effects on internal control and organizational routines. In contrast, cost reduction shows only a weak and non-significant relationship with performance. These results reinforce the theoretical claim that modern accounting systems, such as e-accounting, can enhance organizational performance primarily through improvements in information quality and decision-making processes rather than through cost savings alone.

This study contributes to the growing body of knowledge on e-accounting by integrating insights from stakeholder theory, contingency theory, and the technology acceptance model (TAM). Few studies have examined the relationship between e-accounting adoption and SME performance in Iraq, and the current findings provide valuable evidence in this context. Although the adoption of e-accounting among Iraqi SMEs remains modest, its gradual increase supports economic restructuring and SME development, enabling firms to remain competitive in dynamic markets.

The mediator analysis further highlights the importance of internal control systems in linking e-accounting features to performance outcomes. The results support stewardship and stakeholder theories, demonstrating that effective internal control mechanisms enhance audits, monitoring, and reporting, thereby improving organizational performance. This underscores the strategic role of internal control as both a safeguard and a driver of efficiency in SMEs adopting e-accounting systems.

X.III Limitations

his study examined the impact of selected e-accounting characteristics and the mediating role of internal control systems on SME performance. However, several limitations should be acknowledged.

First, the relationships between individual dimensions of e-accounting and performance may be influenced by additional mediating variables or other characteristics of e-accounting that were not included in the current model. It is possible that other factors could provide stronger explanatory power for performance outcomes.

Second, the scope of this study was limited to the commercial sector of Iraqi SMEs. As such, the findings may not be fully generalizable to other sectors such as industrial, agricultural, tourism, or multi-sector SMEs. Future research should extend the investigation to these sectors to capture contextual differences and provide comparative insights.

Third, future studies could explore the risk dimension of e-accounting adoption and its implications for organizational performance. While

technological advancements in computing and information systems continue to evolve, corresponding procedures, controls, and employee competencies may not progress at the same pace. This imbalance could expose SMEs to risks related to data integrity, reliability, and system stability.

Finally, accounting information systems, if inadequately managed or exposed to vulnerabilities, may threaten the reliability and security of financial data. Addressing these risks in future research would provide a more comprehensive understanding of the challenges and opportunities associated with e-accounting adoption in SMEs.

XIV. Suggestion for future research

Several directions can be proposed for future research to extend the findings of this study:

- Alternative Research Methods: While this study relied on questionnaires as the primary data collection tool, future research could employ in-depth interviews or case studies to capture richer insights. Additionally, the use of SMEs' annual reports may provide secondary data for comparative analysis.
- Challenges in E-Accounting Adoption: Further studies could investigate the barriers and difficulties SMEs face when implementing e-accounting systems. Understanding these challenges would help identify the organizational and technical factors that influence adoption and usage.
- Exploring Additional Features of E-Accounting: The current study focused on four features: cost savings, quick decision-making, information quality, and ease of use. Future research could examine other dimensions and benefits of e-accounting, particularly those related to data security, system integration, and fraud prevention, to ensure the integrity of financial information.
- Cross-Country Comparative Studies: Future research could re-examine the mediating role of internal control systems in both developed and developing countries. This would provide comparative insights into how contextual differences influence the relationship between e-accounting and SME performance.
- Moderating and Mediating Variables: Additional variables such as organizational culture, environmental factors, security risks, and employee training could be incorporated into future models. These factors may further explain how e-accounting adoption impacts SME performance in different contexts.

XV. Conclusion

The primary objective of this study was to investigate how the characteristics of e-accounting influence the performance of SMEs in Iraq, with the internal control system serving as a mediating factor. This was achieved through the collection and analysis of empirical data, followed by a comprehensive evaluation of the proposed hypotheses.

Unlike earlier studies that relied on simplified linear models, the current research developed a more robust framework that integrates e-accounting attributes—information quality, cost reduction, fast decision-making, and ease of use—with internal control systems and SME performance. A total of nine hypotheses were formulated based on theoretical foundations, rational reasoning, and empirical evidence, supported by models such as the Technology Acceptance Model (TAM), stewardship theory, and stakeholder theory. Data from 345 accountants working in Iraqi SMEs were analyzed to test these hypotheses.

The study employed a wider range of indicators to capture overlooked dimensions of e-accounting and applied multivariate analysis using SEM-PLS (Partial Least Squares Structural Equation Modeling) to validate both the measurement and structural models. Convergent validity tests confirmed the reliability of the scales, while path analysis results demonstrated that eight of the nine hypotheses were supported.

The findings highlight that SME performance in Iraq is significantly influenced by e-accounting characteristics when combined with an effective internal control system. These results contribute to the academic literature on e-accounting and provide practical implications for researchers, universities, and SME stakeholders. They emphasize the importance of adopting modern accounting systems not only for financial efficiency but also for strengthening internal controls and enhancing organizational performance.

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